

[Calcium Stabilized Zirconia](#)

[Calcium Stabilized Zirconia Sputtering Target](#)

Linear Formula	ZrO ₂ • CaO
Pubchem CID	19827517
MDL Number	N/A
EC No.	234-373-8
IUPAC Name	calcium; oxygen(2-); zirconium(4+)
Beilstein/Reaxys No.	N/A
SMILES	[O-2].[O-2].[O-2].[Ca+2].[Zr+4]
InChI Identifier	InChI=1S/Ca.3O.Zr/q+2;3*-2;+4
InChI Key	OWDMWYGPNPPHFN-UHFFFAOYSA-N
Signal Word	N/A
Hazard Statements	N/A
Hazard Codes	N/A
Risk Codes	N/A
Safety Statements	N/A
Transport Information	N/A

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SAFETY DATA SHEET

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SECTION 1. IDENTIFICATION

Product Identifiers: All applicable American Elements product codes for CAS #11129-15-0

Relevant identified uses of the substance:
Scientific research and development

Supplier details:
American Elements
10884 Weyburn Ave.
Los Angeles, CA 90024
Tel: +1 310-208-0551
Fax: +1 310-208-0351

Emergency telephone number:
Domestic, North America +1 800-424-9300
International +1 703-527-3887

SECTION 2. HAZARDS IDENTIFICATION

Classification of the substance or mixture
Classification according to Regulation (EC) No
1272/2008

The product is not classified as hazardous to health or
the environment according to the CLP regulation.

Classification according to Directive 67/548/EEC or
Directive 1999/45/EC

N/A

Information concerning particular hazards for human
and environment:

The product does not have to be labelled due to the
calculation procedure of the "General Classification
guideline for preparations of the EU" in the latest valid
version.

Hazards not otherwise classified

No data available

Label elements

Labelling according to Regulation (EC) No 1272/2008

N/A

Hazard pictograms

N/A

Signal word

N/A

Hazard statements

N/A

WHMIS classification

Not controlled

Classification system

HMIS ratings (scale 0-4)

(Hazardous Materials Identification System)

HEALTH

FIRE

REACTIVITY

1

0

0

Health (acute effects) = 1

Flammability = 0

Physical Hazard = 0

Other hazards

Results of PBT and vPvB assessment

PBT:

N/A

vPvB:

N/A

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical characterization: Mixtures

Dangerous components:

1305-78-8 Calcium oxide

Xi R37/38-41

Eye Dam. 1, H318;

Skin Irrit. 2, H315; STOT SE 3, H335 4.0%

Additional information

None known.

Non-Hazardous Ingredients

1314-23-4 Zirconium(IV) oxide 96.0%

SECTION 4. FIRST AID MEASURES

Description of first aid measures

If inhaled:

Supply patient with fresh air. If not breathing, provide artificial respiration. Keep patient warm.

Seek immediate medical advice.

In case of skin contact:

Immediately wash with soap and water; rinse thoroughly.

Seek immediate medical advice.

In case of eye contact:

Rinse opened eye for several minutes under running water. Consult a physician.

If swallowed:

Seek medical treatment.

Information for doctor

Most important symptoms and effects, both acute and delayed

No data available

Indication of any immediate medical attention and special treatment needed

No data available

SECTION 5. FIREFIGHTING MEASURES

Extinguishing media

Suitable extinguishing agents

Product is not flammable. Use fire-fighting measures that suit the surrounding fire.

Special hazards arising from the substance or mixture
If this product is involved in a fire, the following can be released:

Calcium oxide

Zirconium oxide

Advice for firefighters

Protective equipment:
Wear self-contained respirator.
Wear fully protective impervious suit.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Keep unprotected persons away.
Ensure adequate ventilation
Environmental precautions:
Do not allow product to enter drains, sewage systems, or other water courses.
Methods and materials for containment and cleanup:
Pick up mechanically.
Prevention of secondary hazards:
No special measures required.
Reference to other sections
See Section 7 for information on safe handling
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

SECTION 7. HANDLING AND STORAGE

Handling
Precautions for safe handling
Keep container tightly sealed.
Store in cool, dry place in tightly closed containers.
Information about protection against explosions and fires:
The product is not flammable
Conditions for safe storage, including any incompatibilities
Storage
Requirements to be met by storerooms and receptacles:
No special requirements.
Information about storage in one common storage facility:
Do not store together with acids.
Store away from oxidizing agents.
Store away from halogens.
Store away from alcohols.
Further information about storage conditions:
Keep container tightly sealed.
Store in cool, dry conditions in well-sealed containers.
Specific end use(s)
No data available

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Additional information about design of technical systems:

Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

Control parameters

Components with limit values that require monitoring at the workplace:

1314-23-4 Zirconium(IV) oxide (96.0%)

PEL (USA) Long-term value: 5 mg/m³
as Zr

REL (USA) Short-term value: 10 mg/m³

Long-term value: 5 mg/m³
as Zr

TLV (USA) Short-term value: 10 mg/m³

Long-term value: 5 mg/m³
as Zr

EL (Canada) Short-term value: 10 mg/m³

Long-term value: 5 mg/m³
as Zr

1305-78-8 Calcium oxide (4.0%)

PEL (USA) Long-term value: 5 mg/m³

REL (USA) Long-term value: 2 mg/m³

TLV (USA) Long-term value: 2 mg/m³

EL (Canada) Long-term value: 2 mg/m³

EV (Canada) Long-term value: 2 mg/m³

Additional information:

No data

Exposure controls

Personal protective equipment

General protective and hygienic measures

The usual precautionary measures for handling chemicals should be followed.

Keep away from foodstuffs, beverages and feed.

Remove all soiled and contaminated clothing immediately.

Wash hands before breaks and at the end of work.

Maintain an ergonomically appropriate working environment.

Breathing equipment:

Use suitable respirator when high concentrations are present.

Recommended filter device for short term use:

Use a respirator with type N95 (USA) or PE (EN 143) cartridges as a backup to engineering controls. Risk

assessment should be performed to determine if air-purifying respirators are appropriate. Only use equipment tested and approved under appropriate government standards.

Protection of hands:

Impervious gloves

Inspect gloves prior to use.

Suitability of gloves should be determined both by material and quality, the latter of which may vary by manufacturer.

Material of gloves

Nitrile rubber, NBR

Penetration time of glove material (in minutes)

480

Glove thickness

0.11 mm

Eye protection:

Safety glasses

Body protection:

Protective work clothing.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

General Information

Appearance:

Form: Powder

Color: White to pale yellow

Odor: Odorless

Odor threshold: No data available

pH: N/A

Change in condition

Melting point/Melting range: ca 2700 °C (ca 4892 °F)
(ZrO?)

Boiling point/Boiling range: No data available

Sublimation temperature / start: No data available

Flammability (solid, gas)

No data available.

Ignition temperature: No data available

Decomposition temperature: No data available

Autoignition: Product is not selfigniting.

Danger of explosion: No data available.

Explosion limits:

Lower: No data available

Upper: No data available

Vapor pressure: N/A

Density at 20 °C (68 °F): 5.89 g/cm³ (49.152 lbs/gal)
(ZrO?)

Relative density

No data available.

Vapor density

N/A

Evaporation rate
N/A
Solubility in Water (H₂O): Insoluble
Partition coefficient (n-octanol/water): No data available.
Viscosity:
Dynamic: N/A
Kinematic: N/A
Solvent content:
Organic solvents: 0.0 %
Solids content: 100.0 %
Other information
No data available

SECTION 10. STABILITY AND REACTIVITY

Reactivity
No data available
Chemical stability
Stable under recommended storage conditions.
Thermal decomposition / conditions to be avoided:
Decomposition will not occur if used and stored according to specifications.
Possibility of hazardous reactions
Reacts with strong oxidizing agents
Conditions to avoid
No data available
Incompatible materials:
Acids
Oxidizing agents
Halogens
Alcohols
Hazardous decomposition products:
Calcium oxide
Zirconium oxide

SECTION 11. TOXICOLOGICAL INFORMATION

Information on toxicological effects
Acute toxicity:
The Registry of Toxic Effects of Chemical Substances (RTECS) contains acute toxicity data for components in this product.
LD/LC50 values that are relevant for classification:
No data
Skin irritation or corrosion:
May cause irritation
Eye irritation or corrosion:
May cause irritation
Sensitization:

No sensitizing effects known.
Germ cell mutagenicity:
No effects known.
Carcinogenicity:
ACGIH A4: Not classifiable as a human carcinogen:
Inadequate data on which to classify the agent in
terms of its carcinogenicity in humans and/or animals.
Reproductive toxicity:
No effects known.
Specific target organ system toxicity - repeated
exposure:
No effects known.
Specific target organ system toxicity - single
exposure:
No effects known.
Aspiration hazard:
No effects known.
Subacute to chronic toxicity:
No effects known.
Additional toxicological information:
To the best of our knowledge the acute and chronic
toxicity of this substance is not fully known.
The product is not subject to classification according
to internally approved calculation methods for
preparations.
Carcinogenic categories
OSHA-Ca (Occupational Safety & Health
Administration)
None of the ingredients is listed

SECTION 12. ECOLOGICAL INFORMATION

Toxicity
Aquatic toxicity:
No data available
Persistence and degradability
No data available
Bioaccumulative potential
No data available
Mobility in soil
No data available
Additional ecological information:
General notes:
Do not allow undiluted product or large quantities to
reach groundwater, water courses, or sewage
systems.
Avoid transfer into the environment.
Results of PBT and vPvB assessment
PBT:
N/A
vPvB:
N/A
Other adverse effects

No data available

SECTION 13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Recommendation

Consult official regulations to ensure proper disposal.

Uncleaned packagings:

Recommendation:

Disposal must be made according to official regulations.

SECTION 14. TRANSPORT INFORMATION

UN-Number

DOT, ADN, IMDG, IATA

N/A

UN proper shipping name

DOT, ADN, IMDG, IATA

N/A

Transport hazard class(es)

DOT, ADR, ADN, IMDG, IATA

Class

N/A

Packing group

DOT, IMDG, IATA

N/A

Environmental hazards:

Marine pollutant (IMDG):

No

Special precautions for user

N/A

Transport in bulk according to Annex II of

MARPOL73/78 and the IBC Code

N/A

Transport/Additional information:

DOT

Marine Pollutant (DOT):

No

SECTION 15. REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture

National regulations

All components of this product are listed in the U.S.

Environmental Protection Agency Toxic Substances

Control Act Chemical substance Inventory.
All components of this product are listed on the
Canadian Domestic Substances List (DSL).
SARA Section 313 (specific toxic chemical listings)
None of the ingredients are listed.
California Proposition 65
Prop 65 - Chemicals known to cause cancer
None of the ingredients are listed.
Prop 65 - Developmental toxicity
None of the ingredients are listed.
Prop 65 - Developmental toxicity, female
None of the ingredients are listed.
Prop 65 - Developmental toxicity, male
None of the ingredients are listed.
Information about limitation of use:
For use only by technically qualified individuals.
Other regulations, limitations and prohibitive
regulations
Substance of Very High Concern (SVHC) according to
the REACH Regulations (EC) No. 1907/2006.
None of the ingredients are listed.
The conditions of restrictions according to Article 67
and Annex XVII of the Regulation (EC) No 1907/2006
(REACH) for the manufacturing, placing on the market
and use must be observed.
None of the ingredients is listed.
Annex XIV of the REACH Regulations (requiring
Authorisation for use)
None of the ingredients is listed.
Chemical safety assessment:
A Chemical Safety Assessment has not been carried
out.

16. OTHER INFORMATION

Safety Data Sheet according to Regulation (EC) No. 1907/2006 (REACH). The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. American Elements shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. COPYRIGHT 1997-2016 AMERICAN ELEMENTS. LICENSED GRANTED TO MAKE UNLIMITED PAPER COPIES FOR INTERNAL USE ONLY.

